# PHASE II ENVIRONMENTAL SITE ASSESSMENT 93 THROUGH 105 OAKMAN BOULEVARD HIGHLAND PARK, MICHIGAN

prepared for

DETROIT/WAYNE COUNTY PORT AUTHORITY 8109 EAST JEFFERSON AVENUE DETROIT, MICHIGAN 48214

and

FOCUS: HOPE 1355 OAKMAN BOULEVARD DETROIT, MICHIGAN 482238

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#### 1.0 INTRODUCTION

Focus: HOPE (the Developer) through the Detroit/Wayne County Port Authority (DWCPA) retained AKT Peerless Environmental Services (AKT Peerless) to conduct a Phase II Environmental Site Assessment (Phase II ESA) of the property located at 93 through 105 Oakman Boulevard in Detroit, Wayne County, Michigan (subject property).

This Phase II ESA was conducted in accordance with (1) AKT Peerless' Proposal for a Phase II ESA (Proposal Number PF-8354-1), dated November 16, 2007; (2) AKT Peerless' USEPA approved work plan, dated January 15, 2008; and (3) American Society for Testing and Materials (ASTM) Designation E 1903-97 "Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process".

This Phase II ESA scope of work is intended to evaluate the RECs presented in Section 2.5. This Phase II ESA scope of work does not evaluate asbestos, mold, or lead paint.

AKT Peerless' Phase II ESA report documents the field activities, sampling protocols, and laboratory results. AKT Peerless' Phase II ESA was performed for the benefit of the Developer and DWCPA; and said parties may rely on the contents and conclusions of this report.

#### 2.0 BACKGROUND

#### 2.1 SITE DESCRIPTION AND PHYSICAL SETTING

The subject property consists of vacant land with historical addresses 93 through 105 Oakman Boulevard. The subject property is located in Highland Park. The subject property is described as Lots 10 to 13 in the Metzger Motor Car Subdivision No. 2. The subject property is situated on the southern side of Oakman Boulevard. The subject property is currently a vacant former parking lot covered with heavy vegetation.

Refer to Figure 1 for a topographic site location map. See Figure 2 for a site map with utility locations.

#### 2.2 SUBJECT PROPERTY HISTORY AND LAND USE

The subject property is not currently being used for any significant purpose.



The subject property contained two, single-family residential houses from at least 1925 until these buildings were demolished in the 1960s.

#### 2.3 ADJACENT PROPERTY LAND USE

The following table describes the current uses of the adjoining properties, identified occupants, and noteworthy observations of environmental concern, if any, that were noted during AKT Peerless' recent subsurface investigation.

Direction	Address	Current Use / Occupant	Potential Concerns
North	100 Oakman Boulevard	Vacant Sanders Country Home Bakery	None observed
East	Unknown	Commercial Buildings	None observed
South	Unknown	Residential and vacant land	None observed
West	Unknown	Commercial buildings	None observed

#### 2.4 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

#### 2.4.1 AKT Peerless April 2001 Phase I ESA

On April 16, 2001, AKT Peerless completed a Phase I ESA on behalf of the Wayne County Brownfield Redevelopment Authority (WCBRA). The purpose of AKT Peerless' Phase I ESA was to evaluate the current and historical conditions of the subject property in an effort to identify *recognized environmental conditions* (RECs)<sup>1</sup> and *historical recognized environmental conditions* (HRECs)<sup>2</sup> in connection with the subject property. The investigation area included three parcels – part of which included the subject property. The only REC associated with the subject property identified by AKT Peerless was the lack of information regarding utilities and basements for the former residential dwellings.

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<sup>&</sup>lt;sup>1</sup> ASTM's Standard Practice E 1527-05 defines the term recognized environmental condition (REC) as the presence or likely presence of any hazardous substance or petroleum product on a property under conditions that indicate (1) an existing release, (2) a past release, or (3) a material threat of a release of a hazardous substance or petroleum product into structures on the subject property or into the ground, groundwater, or surface water of the subject property.

<sup>&</sup>lt;sup>2</sup> ASTM defines the term historical recognized environmental condition (HREC) as an environmental condition which in the past would have been considered an REC, but which may or may not be considered an REC currently. Neither HRECs nor RECs are intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.



#### 2.4.2 AKT Peerless February 2002 Subsurface Investigation Report

In February 2002, AKT Peerless completed a Phase II ESA of the three parcels making up the Federal Engineering Building property. One of these parcels included the subject property. The purpose of AKT Peerless' subsurface investigation was to evaluate the RECs identified during the April 2001 Phase I ESA, and to gain a better understanding of the environmental condition of the subject property. The following subsections provide a summary of the activities conducted during AKT Peerless' Phase II ESA.

#### Soil Borings

During this investigation, AKT Peerless (1) drilled one soil boring (AKT02 B-3) to evaluate the environmental condition of the subject property and (2) collected two soil samples from this boring. Samples were submitted for select laboratory analysis including volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PNAs), Michigan Metals<sup>3</sup>, and polychlorinated biphenyls (PCBs).

#### Analytical Results

Laboratory analytical results indicated the presence of arsenic at concentrations of above the Michigan Department of Environmental Quality (MDEQ) Generic Residential Cleanup Criteria (GRCC) for direct contact, and the presence of PNAs in the shallow soil above laboratory method detection limits, but below MDEQ GRCC.

#### 2.5 SUMMARY OF RECOGNIZED ENVIRONMENTAL CONDITIONS

Based on the results of AKT Peerless' April 2001 Phase I ESA and February 2002 Phase II ESA Reports, the following environmental conditions were identified in connection with the subject property:

- 1. The subject property contained two residential houses from at least 1925 until they were demolished and parking lots were constructed in the 1960s. Specific information regarding the utilities associated with these houses was not readily available at the time of these assessments. Therefore, the residences may have used heating oil storage tanks.
- 2. The results of the February 2002 Phase II ESA indicate the presence of arsenic above MDEQ GRCC for direct contact, and the presence of PNAs in the shallow soil. The PNAs detected were not above GRCC, however, the highest concentrations may not have been identified.

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<sup>&</sup>lt;sup>3</sup> Michign metals include arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver and zinc.



#### 3.0 PHASE II ENVIRONMENTAL SITE ASSESMENT ACTIVITIES

#### 3.1 SCOPE OF ASSESSMENT

To further evaluate the RECs, AKT Peerless conducted a subsurface investigation of the subject property that included: (1) drilling nine soil borings (B-1 through B-9) and (2) collecting nine soil samples. Samples were submitted for laboratory analysis of PNAs and arsenic.

The following table summarizes each environmental concern, the site investigation activities performed to address each REC, and the laboratory parameters used to address each REC.

#### **Summary of AKT Peerless' Scope of Investigation**

REC#	Environmental Concern	Investigation Activity	Analytical Parameters
REC 1	Potential heating oil	B-1 through B-9	Arsenic and PNAs
REC 2	Results from previous Phase II ESA	B-1 through B-9	Arsenic and PNAs

#### 3.1.1 Soil Evaluation

On August 21, 2008, AKT Peerless drilled nine soil borings (B-1 through B-9) at the subject property. AKT Peerless used hand-auger sampling techniques to complete these borings. AKT Peerless collected continuous soil samples from the soil borings in six inch intervals to the maximum depth explored of 4 feet below ground surface (bgs). AKT Peerless personnel inspected, field-screened, and logged the samples collected at each soil boring location. Refer to Figure 2 for a site map with soil boring locations. Boring logs are provided in Appendix A.

#### 3.1.2 Groundwater Evaluation

AKT Peerless did not encounter groundwater in any of the soil borings drilled at the subject property.

#### 3.2 QUALITY ASSURANCE/QUALITY CONTROL

To ensure the accuracy of data collected during on site activities, AKT Peerless implemented proper quality assurance/quality control (QA/QC) measures. The QA/QC procedures included, but were not limited to, (1) decontamination of sampling equipment before and between sampling events, (2) calibration of field equipment, (3) documentation of field activities, (4) sample preservation techniques, and (5) QA/QC samples.

#### 3.2.1 Decontamination of Equipment

During sample collection, AKT Peerless adhered to proper decontamination procedures. Sampling equipment was decontaminated using the following methods to minimize potential cross-contamination of soil samples:



- Steam-cleaning or washing and scrubbing the equipment with non-phosphate detergent
- Rinsing the equipment
- Air-drying the equipment

#### 3.2.2 Calibration of Field Equipment

All field instruments were calibrated prior to first use on-site to ensure accuracy. Field instruments utilized during investigation activities at this subject property were a photoionization detector (PID), a water quality indicator meter (the meter measures pH, temperature, dissolved oxygen, conductivity and oxidation reduction potential), and a turbidity meter.

During AKT Peerless' Phase II ESA, a photoionization detector (PID) was used to screen all soil samples. The PID was maintained in a calibrated condition using 100 ppm isobutylene span gas prior to subsurface investigations.

#### 3.2.3 <u>Documentation of Activities</u>

During AKT Peerless' Phase II ESA activities, subject property conditions (i.e. soil boring locations, weather conditions) were documented. AKT Peerless visually inspected the soil and groundwater samples and prepared a geologic log for each soil boring. The logs include soil characteristics such as (1) color, (2) composition (e.g., sand, clay, or gravel), (3) soil moisture and water table depth, and (4) signs of possible contamination (i.e., stained or discolored soil, odors). Soil types were classified in accordance with ASTM publication D-2488 "Unified Soil Classification System". All soil and groundwater samples were delivered to a laboratory under chain-of-custody documentation. See Appendix A for AKT Peerless' soil boring logs. See Figure 2 for site map with soil boring locations.

#### 3.2.4 Sample Preservation Techniques

AKT Peerless collected soil samples according to USEPA Publication SW-846, *Testing Methods for Evaluating Solid Waste*. Soil and groundwater samples were collected in laboratory-supplied containers, stored on ice or at approximately 4 degrees Celsius, and submitted under chain-of-custody documentation.

Soil samples collected for volatile analyses were field preserved with methanol in accordance with U.S. EPA Method 5035. Soil samples collected for polynuclear aromatic hydrocarbons (PNAs), and metals analyses were stored in unpreserved, 4-ounce wide-mouth jars.

#### 3.2.5 QA/QC Sample Collection

AKT Peerless collected QA/QC samples for soil and water matrices as recommended by the Michigan Department of Environmental Quality (DEQ) – Remediation and Redevelopment Division (RRD) Operational Memorandum No. 2, Attachment 5. The following table describes the QA/QC samples collected for each matrix according to AKT Peerless' USEPA Work Plan, dated January 15, 2008.



	Type and Number of QA/QC Samples Collected			
Number of Samples/Matrix	Bottle Blank	Field Equipment Blank (1 per 10/matrix)	Field Duplicate (1 per 10/matrix)	Trip Blank (1 per day)
9/Soil	1	1	1	1

#### 3.3 LABORATORY ANALYSES AND METHODS

AKT Peerless submitted nine soil samples for laboratory analyses. The following table summarizes the location, depth, matrix, and laboratory analysis for each sample.

Sample Name/Depth (in feet)	Matrix	PNAs	Arsenic
B-1 (2-4)	Soil	$\square$	$\overline{\mathbf{V}}$
B-2 (2-4)	Soil	Ø	Ø
B-3 (2-4)	Soil	Ø	Ø
B-4 (2-4)	Soil	Ø	Ø
B-5 (2-4)	Soil	V	V
B-6 (2-4)	Soil	v	Ø
B-7 (2-4)	Soil	v	Ø
B-8 (2-4)	Soil	V	V
B-9 (2-4)	Soil	$\overline{\mathbf{V}}$	V

#### **Summary of Laboratory Analyses**

The laboratory analyzed the samples for: (1) PNAs in accordance with USEPA Method 8270C and (2) Arsenic in accordance with USEPA Method 6020.

#### 4.0 EVALUATION AND PRESENTATION OF RESULTS

#### 4.1 SUBSURFACE CONDITIONS

#### 4.1.1 Geologic Setting

#### 4.1.1.1 Soil and Groundwater Conditions based on Published Material

According to the United States Department of Agriculture, *Soil Survey of Wayne County*, *Michigan*, the soil in the area is classified as the Pewamo-Blount-Metamora association. This soil is described as "nearly level to gently sloping, poorly drained to somewhat poorly drained soils that have a fine-textured to moderately fine-textured subsoil."

According to the Michigan Geological Survey Division's publication, *Quaternary Geology of Southern Michigan*, soil in the area is lacustrine clay and silt. This soil is described as gray to





dark reddish brown and is varved in some localities. The soil chiefly underlies extensive, flat, low-lying areas formerly inundated by glacial Great Lakes. Soil thickness ranges from 10 to 30 feet. Typically, lacustrine clay and silt are associated with low hydraulic permeability and restrict the movement of groundwater.

#### 4.1.1.2 Soil and Groundwater Conditions based on Field Observations

During drilling activities, AKT Peerless encountered the following soil types:

- FILL from just below the ground surface to three feet bgs. This fill consisted of sand that was dark brown to brown in color and limestone aggregate with varying amounts of clay and masonry debris found in some of the borings.
- CLAY from three feet to four feet bgs, the maximum depth explored. This clay was dry, brown to grey in color, medium-stiff, and occasionally mottled.

Other than the fill material, the geology encountered during this Phase II ESA is consistent with the geology described in the publications noted in Section 4.1.1.1. In addition, a previous investigation on the subject property indicated that the fill was encountered from just below ground surface to a depth of approximately four feet bgs and Clay was encountered from four feet bgs to a ten feet bgs, the maximum depth explored on the subject property. Soil boring logs are included as Appendix A.

AKT Peerless did not encounter groundwater on the subject property during this subsurface investigation. In addition, groundwater was not encountered in borings completed nearby the subject property in 2002. These borings were completed to a maximum depth of 16 feet and contained a confining layer of clay from 4 to 16 feet bgs. Sand and gravel seams were not located in these borings.

#### 4.2 MDEQ RELEVANT EXPOSURE PATHWAYS AND APPLICABLE CRITERIA

#### **4.2.1** Relevant Exposure Pathways

As defined in Michigan Public Act 451 Part 201, "relevant pathway" means an exposure pathway that is reasonable and relevant because there is a reasonable potential for exposure to a hazardous substance. The analysis of potential exposure pathways is based on existing conditions at the subject property. The following subsections identify the relevant exposure pathways based on the subject property conditions observed.

#### 4.2.1.1 Ingestion of Groundwater Pathway

Groundwater was not encountered in any of the soil borings drilled at the subject property. Soil borings were drilled to a maximum depth of four feet bgs. In addition, groundwater was not encountered in borings completed nearby the subject property in 2002. These borings were completed to a maximum depth of 16 feet and contained a confining layer of clay from 4 to 16 feet bgs. Sand and gravel seams were not located in these borings.





Groundwater beneath the subject property does not meet the definition of "groundwater" in an aquifer. Furthermore, groundwater from the area of the subject property does not serve as the primary drinking water source for properties in Detroit, which obtains its municipal water from the City of Detroit. Therefore, ingestion of groundwater at the subject property is not a relevant exposure pathway.

The groundwater at the subject property does not meet the definition of "groundwater in an aquifer". Therefore, ingestion of groundwater at the subject property is not a relevant exposure pathway.

#### 4.2.1.2 Groundwater Venting to Surface Water Pathway

Groundwater Venting to Surface Water is not a human exposure pathway, but rather an exposure pathway based on aquatic toxicity. The subject property is not located adjacent to any lakes or rivers and AKT Peerless did not encounter any groundwater at the subject property. Therefore, groundwater venting to surface water is not a relevant exposure pathway.

#### 4.2.1.3 Groundwater Contact Pathway

Groundwater contact pathway is a relevant pathway.

#### 4.2.1.4 Volatilization to Indoor Air Inhalation Pathway

Volatilization to Indoor Air Inhalation is a relevant exposure pathway.

#### 4.2.1.5 Volatilization to Ambient Air Pathway

Volatilization to Ambient Air is a relevant exposure pathway.

#### 4.2.1.6 Particulate Inhalation Pathway

Particulate Inhalation is a relevant exposure pathway.

#### **4.2.1.7 Direct Contact Pathway**

Direct Contact is a relevant exposure pathway.

#### 4.2.2 Applicable Criteria

Applicable criterion means a cleanup criterion for a relevant pathway. A criterion is not applicable if the exposure pathway is not relevant. Based on the exposure pathway evaluation, the applicable pathways at the subject property include:

- Soil Volatilization to Indoor Air Inhalation (SVIAI);
- Infinite Source Volatile Soil Inhalation (VSIC);
- Groundwater Contact Protection (GCP)
- Particulate Soil Inhalation (PSI), and;
- Soil Direct Contact (DC).



AKT Peerless compared the laboratory analytical data to the applicable Part 201 GRCC as published by the MDEQ-RRD.

#### 4.2 LABORATORY ANALYTICAL RESULTS

AKT Peerless collected soil samples for the purpose of determining if the subject property meets the definition of a *facility*. Analytical results were compared with MDEQ Residential and Commercial I Generic Cleanup Criteria provided in MDEQ RRD Operational Memorandum No. 1, Tables 1 and 2.

#### 4.2.1 <u>Soil Analytical Results</u>

The results of the laboratory analyses indicated that no target parameters were detected above MDEQ GRCC in the soil samples. During AKT Peerless' February 2002 subsurface investigation, arsenic was detected in AKT02 B-3 at concentrations above MDEQ Part 201 Generic Residential Direct Contact Criteria. However, during AKT Peerless 2008 subsurface investigation arsenic was not detected above MDEQ GRCC. Therefore, AKT Peerless evaluated the arsenic concentrations at the subject property using a data set that included of ten soil samples collected in fill/clay interface (2 to 4 feet below ground surface).

According to Guide Sheet 10 of the MDEQ Part 201 Training Manual (July 2006), *background* is defined as the concentration or level of a hazardous substance which exists in the environment at - or regionally proximate to - a Facility that is not attributable to any release at or regionally proximate to the Facility. Guide Sheet 10 allows for the calculation of alternative background concentrations using the methods described in the DEQ's Sampling Strategies and Statistics Training Materials (S<sup>3</sup>TM). Of the methods described in the S<sup>3</sup>TM, AKT Peerless evaluated arsenic concentrations using comparison of site criteria using a 95% Upper Confidence Limit (UCL).

#### Calculation of 95% Upper Confidence Limit for Arsenic

AKT Peerless conducted a statistical comparison of arsenic results for 10 soil samples collected from the subject property. Using the MDEQ Statistics Interface Website (<a href="http://www.deq.state.mi.us/stats/fileup.jsp">http://www.deq.state.mi.us/stats/fileup.jsp</a>), AKT Peerless determined that the arsenic concentrations collected at the subject property are log normally distributed. Based on a comparison of the 95% Upper Confidence Limit for the Mean (1,639.8 μg/kg) to the Part 201 Generic Residential Direct Contact Criteria (7,600 μg/kg), the concentrations of arsenic do not exceed Residential Direct Contact Criteria.

Refer to Table 1 for a summary of soil analytical results. Refer to Appendix B for a complete analytical laboratory report.

#### 4.2.2 Groundwater Analytical Results

AKT Peerless did not encounter groundwater at the subject property during this subsurface investigation.



#### 5.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### 5.1 SUMMARY OF ENVIRONMENTAL CONCERNS

Based on the results of AKT Peerless' April 2001 Phase I ESA and February 2002 Phase II ESA Reports, the following environmental conditions were identified in connection with the subject property:

- Potential heating oil tanks
- Results from AKT Peerless February 2002 Phase II ESA

#### 5.2 SUMMARY OF INVESTIGATION

On August 21, 2008, AKT Peerless conducted a subsurface investigation at the subject property to address the environmental concerns identified during previous environmental investigations. AKT Peerless (1) drilled nine soil borings (B-1 through B-9) and (2) collected nine soil samples. AKT Peerless submitted soil samples for laboratory analyses of PNAs and arsenic.

#### 5.3 CONCLUSIONS

The laboratory analytical results from soil samples collected at the property indicate that no target parameters were detected above GRCC. In addition, AKT Peerless completed a background evaluation for arsenic. According to this evaluation the detected concentration of arsenic at the subject property is representative of Regional Background Levels. Therefore, the subject property does not meet the definition of a "facility", as defined in Part 201 of Natural Resources and Environmental Protection Act (NREPA), Michigan Public Act (PA) 451, 1994, as amended.

#### 5.4 **RECOMMENDATIONS**

In AKT Peerless' opinion, no further investigation of the subject property is warranted at this time.

#### 6.0 <u>LIMITATIONS</u>

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Report prepared by:

Megan Bahorski

**Environmental Consultant** 

**AKT PEERLESS ENVIRONMENTAL SERVICES** 

Detroit, Michigan Office

phone: 313.962.9353 fax: 313.962.0966

Report reviewed by:

Timothy J. McGahey, CHMM Operations Manager – Detroit Branch AKT PEERLESS ENVIRONMENTAL SERVICES Detroit, Michigan Office

Denon, Michigan Office

phone: 313.962.9353 fax: 313.962.0966





**FIGURES** 





**TABLES** 



## APPENDIX A SOIL BORING LOGS



## APPENDIX B LABORATORY ANALYTICAL REPORT